MARKET STREET DESIGN REPORT NUMBER 4

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STREET AND SIDEWALK-WIDTHS AND USES

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TRANSIT TASK FORCE

City and County of San Francisco

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CONSULTANTS: MARKET STREET DEVELOPMENT PLAN

May 9, 1966

Mr. Edward I. Murphy
Project Manager
Transit Task Force
City and County of
San Francisco
1254 Market Street
San Francisco, California

Dear Ed:

We are sending you herewith a copy of our Market Street Design Report No. 4.

Sincerely,

JOHN CARL WARNECKE
AND ASSOCIATES

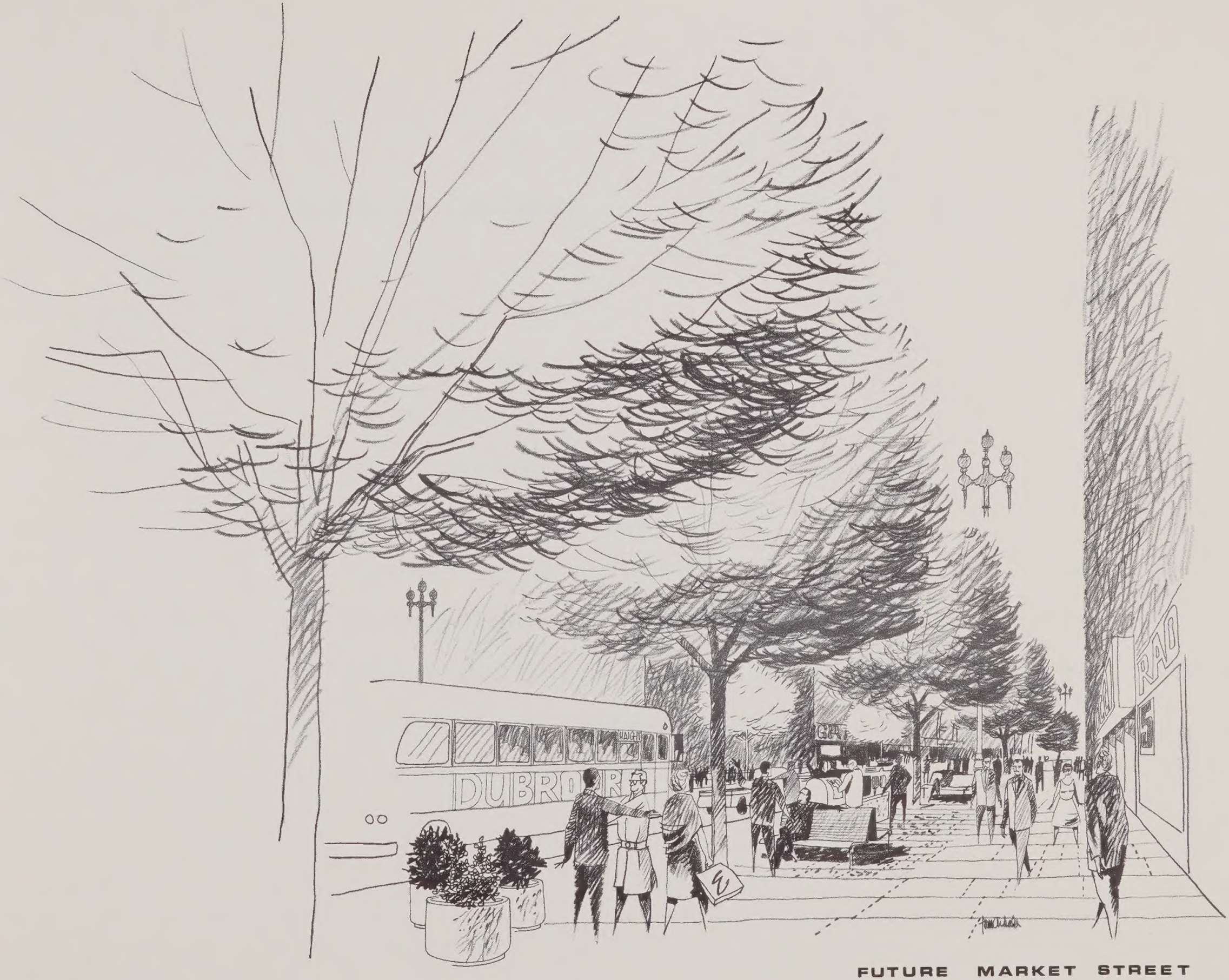
Thomas H. Creighton

MARIO J. CIMAPI
AND ASSOCIATES

Mario J. Ciampi

Enc.

THC:vp



FUTURE MARKET STREET

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A. INTRODUCTION

The subject of this Report is the use of Market Street after construction of the Bay Area Rapid Transit facilities are completed. The Urban Design consultants, in Stage II of their work, have developed alternate circulation studies and have gathered data that is now available, regarding circulation and land use in the Market Street zone, from other studies underway, such as the Parking and Traffic study, the C - 3 zoning study, the MUNI study, and from material gathered by the Market Street Task Force.

From this data, and from their own preliminary design studies of the potential character, quality and use of the Street, various alternatives have been developed and analyzed, and are set forth in this Report, with the Consultants' recommendations. The analyses contained in this Report follow from and are a logical succession to the findings and recommendations in previous Reports submitted during Stage I of the Consultants' work.

At this point it is essential that the City determine policy with regard to use of the Street - primarily width of the traffic surface, number of traffic lanes, use of these lanes by various types of vehicles, and width and use of the sidewalks. This policy is necessary for two reasons.

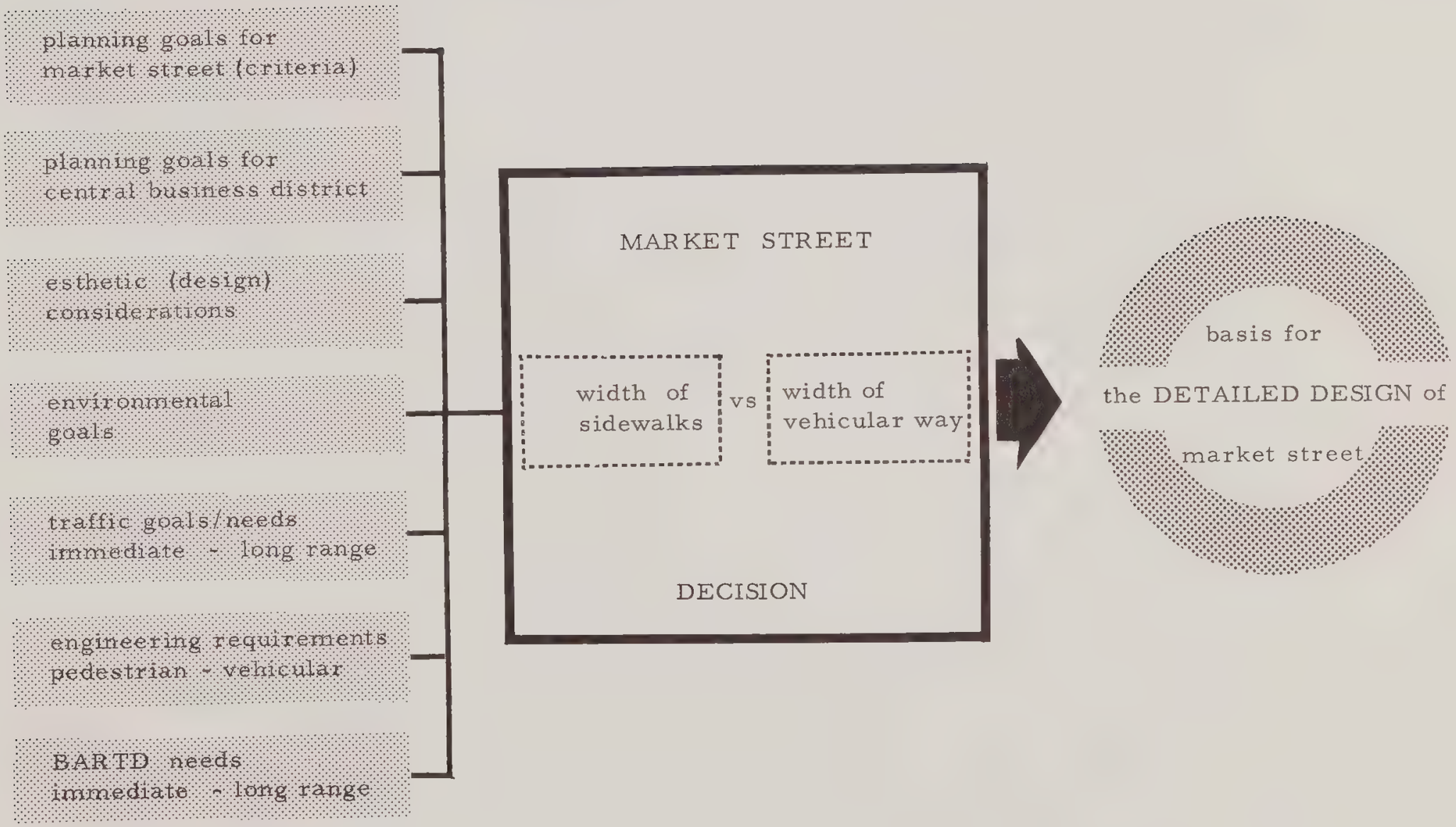
1. The width and use of street surface and sidewalks are basic program elements in the final, detailed design stage the Consultants are now approaching. Physical form studies, suggestions for public and private improvements, development of plaza designs, and detailed treatment of planting, lighting, street furniture and paving cannot be carried further without this underlying policy decision.

2. Coordination with other studies still underway cannot be fully effected without a determination of street circulation use. A collaborative approach with other concultants and agencies toward zoning recommendations, traffic and parking solutions, development and improvement of the MUNI System, connections to the Yerba Buena and Golden Gateway redevelopment areas, Civic Center development plans, and other projects related to Market Street is not possible without this policy decision.

Decisions that have been made up to this point are reviewed in this Report. Goals and objectives for the development of Market Street, outlined as a set of criteria which had been proposed in previous reports, are again set forth here. The present circulation on Market Street, by pedestrians, transit vehicles and other automotive traffic is analyzed. Five possible alternative uses of the street - six lanes of traffic, with 30 foot sidewalks; five lanes of traffic, with 32.5 foot sidewalks; and three possible developments of four lanes of traffic, with 35 foot sidewalks, are analyzed, with their advantages and disadvantages listed.

B. RECOMMENDATION

After evaluating these analyses, the Consultants respectfully recommend that the City adopt the policy that there should be four lanes of moving traffic on Market Street between Ferry Park and Van Ness Avenue, and that 35-foot wide sidewalks should be provided wherever possible.


planning goals for
market street (criteria)
planning goals for
central business district
esthetic (design)
considerations
environmental
goals
traffic goals/needs
immediate - long range
engineering requirements
pedestrian - vehicular
BARTD needs
immediate - long range
MARKET STREET
width of
sidewalks
vs
width of
vehicular way
DECISION
basis for
the DETAILED DESIGN of
market street

C. PREVIOUS DECISIONS AND RECOMMENDATIONS

Certain previous decisions, directives or recommendations have guided but have not limited the studies described in this Report.

1. On March 29, 1965, the Board of Supervisors adopted a statement of policy with regard to the Bay Area Rapid Transit Districts' segment on Market Street, which said in part:

   "The Board of Supervisors believes that the Market Street sidewalks should be widened to approximately thirty-five feet to encourage design excellence and to facilitate the efficient movement of pedestrian traffic". The Market Street Task Force and the City's urban design consultants were requested "to develop immediately schemes to achieve this objective".

   Report No. 3 of the Consultants, submitted on June 28, 1965, did develop and recommend such a scheme, identified in that Report as Design Proposal B. It indicated a fifty-foot wide, four lane street, generally with 35-foot wide sidewalks, with parking bays at certain places cutting into the sidewalk width. That proposal, refined and studied in more detail than was then possible, is basically Circulation Plan Four-Lanes B as described in the present Report.

2. Early in its studies of possible uses of Market Street, the Task Force, with the approval of its Advisory Committee, advised BARTD and its station architects

to design to a dimension no greater than 28.5 feet from the building line to the outer extremity of station entrances. This was intended to give flexibility in width and use of street surface, and not limit future decisions, since it left 63 feet clear between station-entrance outer walls. This decision was reaffirmed in the Task Force Report: Market Street Development, an analysis, issued in August, 1965.

3. An earlier decision that most efficient and comfortable use of Market Street would be achieved if public transit buses were to operate in the curb lane, rather than in the center of the street as trolleys do at present, was also reaffirmed in the previously referred to Task Force Report of August, 1965.

4. Additional comments relating to street and sidewalk width and use were contained in the August, 1965 Task Force Report, as suggestions for further study, without specific recommendations.

   a. It was suggested that "along the length of Market Street, changing pedestrian and vehicular volumes may require variations in the widths of sidewalks".

   b. It was suggested that "parking bays on Scheme B would impede the flow of vehicular traffic, especially transit buses".

5. Station entrances locations, in a longitudinal sense, have been determined by the Market Street Task Force and the Consultants, working jointly. These determinations had to be made in order to complete an application made by the City for Federal capital assistance under the Urban Mass Transportation program of the Housing and Home Finance Agency. Since the application includes possible extensions of station mezzanines and other changes in station design, two sets of entrance locations have been established - those that would be used with Federal financial aid, and those that would be used without such aid.

   Although these decisions and recommendations have been guides in recent studies, the Consultants have continued to analyze other alternatives, as this Report indicates.

D. GOALS AND OBJECTIVES

The Sureness of Change

In previous reports, certain goals and objectives for the future of Market Street have been described.

In the minds of different people the kind of street that emerges from the subway construction may have different forms. Some of the presently successful merchants are inclined to want no change - things, to them, are good the way they are. Others, businessmen and land holders, looking further forward, see a future Street quite different from the present one, in kind and degree of activity. Those who are sensitive to San Francisco's unique qualities hope that the essential character of the Street can remain, even as its use intensifies. At one extreme, there are those who would see it a great automobile thoroughfare; at another, are those who would prefer it to be primarily a pedestrian place. There are strong arguments for Market Street's surface, as well as its sub-surface, to be reserved largely for movement of public transit vehicles.

One thing is very certain: when the two years of subway construction are finished, when the street surface is rebuilt and refurnished, when trains begin moving beneath its surface and people start pouring out from entrances cut into its sidewalks, Market Street's nature will change. Every economic study that has been made and the experience of every city that has built subways in its core point to accelerated development, intensified land use, increased property values and greater concentrations of people - in short, a rapid up-turn in volume and quality of activity near the stations.

Consistent with this certainty of quantitative and qualitative change, and shining through all of the disparate individual objectives, is the aim of greatness for the Street. There is a frustrated realization that despite its long and colorful history, despite its recognized qualities and its own kind of busy activity, Market Street has somehow missed being one of the world's, or even this country's, memorable, great thoroughfares - and that it now has the opportunity to achieve greatness.

As Mayor Shelley has asked: "Why cannot we have a Great Market Street: a magnificent place as beautiful as our hills and our Bay, a place people will come from all over the world to see?"

What makes a street truly great? When we speak of Great Streets, we have to qualify and define the term. Different persons picture different streets that they have visited and experienced; there would probably be a few on which most would agree as "great," but there would be wide variety in the choices beyond them.

There are great boulevards, and there are great shopping streets. There are prestige streets, lined with expensive stores, and there are other great streets where ordinary people gather to enjoy themselves. Which of these - or something very different from any of them - do we want Market Street to become?

The great streets that come immediately to mind - Unter den Linden, the boulevards of Paris, the Reforma, The Ringstrasse, some of Washington's avenues - were consciously designed as wide boulevards, in the 18th and 19th centuries, as parts of grand city plans. They often connected imperial structures and were lined with civic and governmental buildings, and were products of the genius of Haussman in Paris, l'Enfant in Washington; the ambitions of Napoleon III and of Frederick the Great.

But not all of these avenues have survived as great. The streets that have remained or became great in the mid-twentieth century have been much more than wide ceremonial boulevards. They are dynamic places, attractive to and used by the people of their cities and they are lively, integral parts of those cities' lives.

The great twentieth century streets that have escaped being hollow echoes of bureaucratic pride are also great commercial streets. The older streets that survive as great are today great shopping streets - streets vital with activity. The newer great streets are lively with congresses of busy people, bent on doing and buying as well as walking and seeing.

A single grand characteristic does not make a great street. The great street we remember is usually lined with trees, stimulated by works of art and fountains and often punctuated by plazas, but landscaping alone is not a sure ingredient. There are tree-bordered boulevards that are dead; even some of the very recent landscaped "malls" are inactive failures. Many qualities are necessary to achieve greatness - and fortunately, Market Street already has many of them. An analysis of active streets recognized as great today shows that such a thoroughfare has these characteristics:

- it is grand, and broad, and long
- it goes from through, and to important parts of the City
- it encompasses, along its length, varied and differing activities
- it has a proud history of importance and activity

- it stimulates human participation: things for people to do; places for people to walk, to shop, to rest, to gawk, to sit; places to eat, works of art to admire; a sense of human pace and human scale.

- its length is interrupted by important focal points, by plazas and open spaces, by centers of activity and clusters of people. A too-long street is tiresome, boring.

- it is busy for many hours - not dead in one place by day, quiet in another in the evening.

- it connects to contiguous sections, leading into, attracting out of, providing vistas and visual connections to and through, supplementing and complementing the parts of the city that lie along its sides.

All of these qualities should add up to a great, lively, human street. One more important ingredient is needed, however: dynamic growth, the possibility of self-renewal, the vision of an ever better future. Some streets become great and die; others become even greater as time goes on.

The City's Role

Today, city after city around the world is trying to establish or re-establish a principal artery - a great street - in a hopefully renewed downtown. In Rotterdam, Stockholm, Philadelphia, Washington, Toronto, Denver, St. Louis and innumerable other cities, efforts are in some cases succeeding, in other instances only producing new empty spaces. The difference between success and failure seems to lie in the criteria described above and,

most importantly, in the degree towhich the City anticipates the possibilities of private development and provides the incentives to stimulate this growth. On Market Street the City of San Francisco can stimulate development in two ways. First, by focusing pedestrian movements on certain plaza locations, desirable sites for new office buildings and stores are created nearby. Second, by treating the street surface in the manner of a great street, with landscaping, attractive signs and street furniture, the City can create an atmosphere conducive to new development.

The combination of these factors and the thousands of additional people brought to the Street by the subway system whould produce a desirable mix of activities. It is to the City's interest to follow the example of other great streets in their multiplicity of functions. The mix of functions in those streets is not only a factor which makes them interesting and exciting streets but is the factor which accounts for their long survival. In the modern Downtown it is not an aesthetic or social goal to provide a variety of functions in close proximity, but is an economic necessity. In order to maintain the Downtown's dominance over the outlying shopping centers, special experiences including cultural and recreational activities must be provided. The subway under Market Street offers great potentials for growth; but in itself it will not produce a greater street than there has been in the past, but through civic foresightedness, the present potentials can be grasped and realized by those who clearly see the future grand possibilities. It has been done elsewhere; San Francisco must try to do it better.

In this Report an essential first step is recommended: adoption by the City of a policy on use of sidewalks and street surface that will allow varied, colorful, enjoyable activity by many people and efficient movement of necessary vehicles.

Design Criteria

In evaluating various alternatives for use and width of street and sidewalk, the Consultants have used a group of criteria as a basis for comparison. In Report No. 3, ten criteria were suggested for the design development of Market Street, as essential in attaining the goals and objectives described above. Here they have been condensed to five design criteria, specifically related to the question of pedestrian and vehicular circulation. They are:

1. PEOPLE. Pedestrian flow must be accommodated for pleasure, commercial and business purposes, and use of rapid transit.

   In using this criterion for evaluation of the several schemes, the Consultants have used available pedestrian traffic counts, present and projected, but have not considered these the only measure of the satisfaction of needs and desires of people on Market Street.

   Counts of the flow of people per minute per pedestrian lane, or number of people that can be accommodated by certain standards by square feet of space are extremely useful in indicating minimum allowable space. However, people are not mechanical objects: their routes are likely to be much more irregular, their speeds variable, their stops and starts for many purposes unpredictable.

   A sidewalk in an urban situation is - or should be, and can be under certain conditions - more than a functional traffic lane for pedestrians to get from one place to another. But it can also be a place for window shopping, a gathering place for special occasions, a strolling place during lunch hours and relaxed periods, a shopping place in itself for newspapers, flowers, candy, chestnuts; a service area for information kiosks, telephone booths, drinking fountains, signs and notices.

The needs of people on a Great Street would, then, include measurable anticipated pedestrian flow at accepted standards, for many purposes, plus opportunity to enjoy people-oriented activities of many kinds, which are not measurable except in humanistic terms.

2. PUBLIC TRANSIT. Vehicles used for mass transport of people to and from downtown must be accommodated and coordinated, on the street surface and below the street in BARTD's tubes, so that their flow is smooth, safe, comfortable and efficient. This means that movement of these vehicles along the street should be unimpeded, their stopping places designed efficiently, and their turns onto and off the street direct and workable, The use of other types of vehicles in the future must also be anticipated.

3. SERVICE AND DELIVERY. Studies have been made of the service and delivery problem on Market Street, and it is recognized that, even with maximum use of off-Market Street delivery accesses, and even anticipating in the future more rationalized delivery systems, certain needs for stopping on the Street for these purposes will remain for a period of time. There are also problems of taxis and private vehicles stopping to drop passengers, or for other legitimate purposes.

4. EMERGENCY ACCESS. Emergency vehicular use of the Street concerns the Fire Department particularly - the need for their vehicles, answering calls, to be able to move through the Street.

5. DOWNTOWN TRAFFIC. Recognizing that Market Street is a link in the downtown traffic circulation network, the Consultants have prepared a number of alternative circulation plans. While they feel that the future transportation use of the Street should be primarily for movement of mass transit, the needs for other vehicular movement have been studied. This criterion includes flow of vehicles, movement through intersections, right turns onto and off the Street, crossings between North and South areas, and coordination with parking plans.

E. PRESENT USE OF MARKET STREET

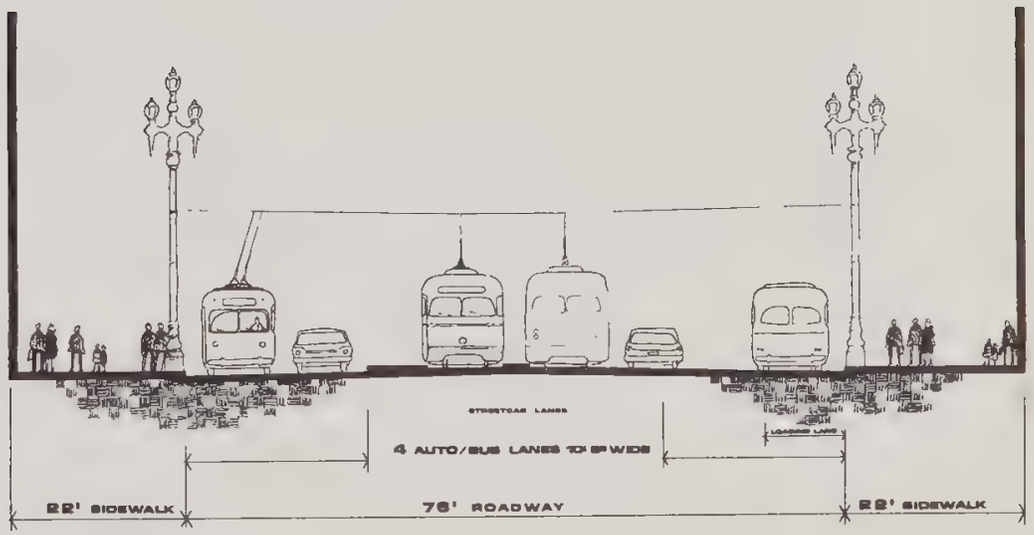
Market Street measures 120 feet from building line to building line. The present sidewalks are 22 feet wide, leaving a street width, between curbs, of 76 feet. Two trolley tracks occupy the center of the street, with loading islands at their stopping points, adjacent to street intersections. The distance from the outside of a loading island to the curb is 21.5 feet - nominally two traffic lanes. Beyond the loading islands, the street widens to 27 feet on each side, from trolley tracks to curb, with an 8 foot curb lane marked off (at different places) for bus stops, emergency parking, delivery and service. This leaves 19 feet between trolley tracks and parking lane, again nominally two traffic lanes.

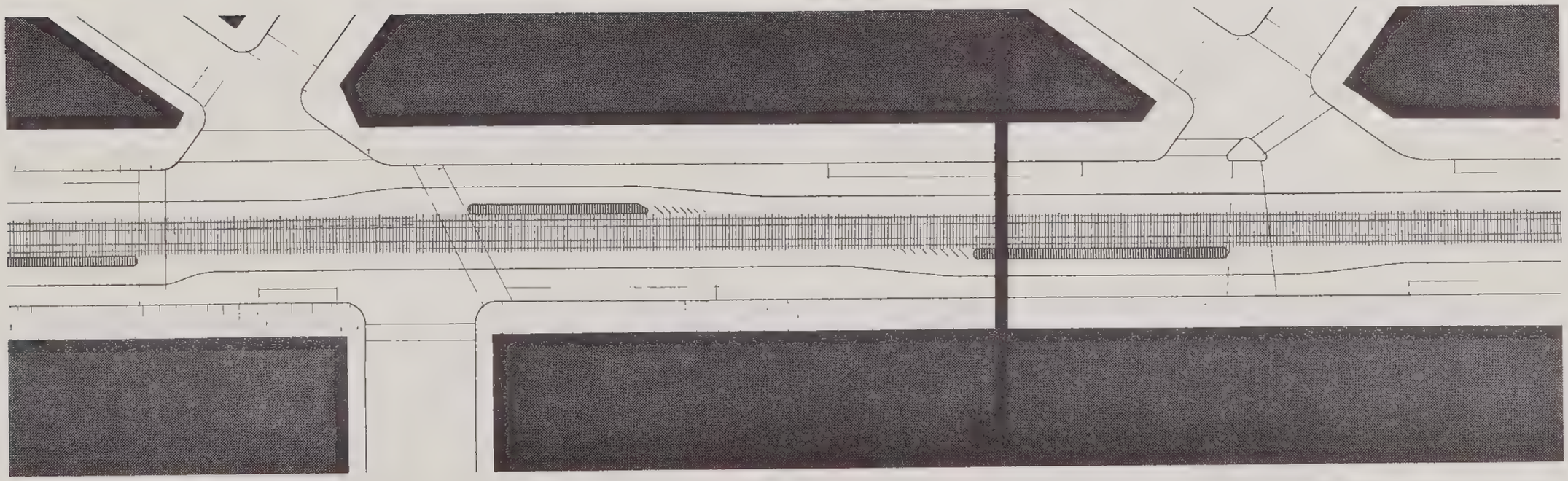
Two factors, however, reduce effective street width to less than two lanes. One is the fact that illegal parking, difficult to police, often takes place at the curb, opposite trolley loading islands, blocking the curb lane, sometimes where traffic desires to make right turns off the street. This is an important factor, since a major part of Market Street automobile traffic is for short distances - on at one intersection and off at another. The other is the fact that buses and delivery trucks usually require more than the 8' loading strip, and hence project into the adjacent traffic lane. Market Street at present, then, does not have full effective use of four moving traffic lanes. Data on present traffic flow on Market, and persons carried by mode of transportation has been gathered and is available. The Market Street Task Force has made an analysis of present use of the street, which is also available.

Market Street's present sidewalk - 22 feet wide on each side of the street - is congested, by observation and experience, at heavy shopping periods and at some points on the Street during normal lunch time or close-of-work periods.

The Market Street Task Force has developed important and useful pedestrian traffic-flow analyses, which is available. Data on anticipated pedestrian flow in the future has also been gathered and is available. Questions of "adequacy" or "congestion" are, however, largely subjective judgments. While no one would wish to lose a sense of busy-ness and vibrant activity on the Street, neither would anyone wish an uncomfortably, tensely crowded situation. It seems clear to the Consultants, as a matter of common-sense judgment, that the influx of greater volumes of pedestrians, as the subway operates, would make any reduction of present effective sidewalk widths unthinkable.

In summary, it can be said that Market Street at present does not provide even four effective lanes for traffic movement, does not have clear, easily policed service facilities, and on its sidewalks does not provide the space or the amenities for pedestrian use that one expects from a great commercial street.





EXISTING STREET

F. FUTURE PEDESTRIAN VOLUMES

Pedestrian traffic figures obtained from the Bureau of Traffic Engineers described cordon count increases averaging 1.5% a year since 1959. The figures include all persons entering downtown by all modes. They are not helpful in detecting areas of pedestrian concentration. Pedestrian counts made on Market Street at various times prior to February 1965 do show the concentrations along the street. Although it is not known whether the counts were taken on typical days, it is assumed that the counts are representative and have been used as the basis for growth patterns depicted in the graphs.

Another question in attempting to assign growth patterns is whether land uses may change substantively or merely in intensity. Opinions of various economic consultants quoted in the C-3 Working Paper and elsewhere seem to indicate that the established quarters of activity--financial, retail, hotel-entertainment, and governmental -- would remain, with a new emphasis on residential (both hotel and apartment) and office uses around the Civic Center, and a spread of the financial district across Market Street southward. It was assumed therefore, for rough calculations, that present pedestrian activity along Market Street would grow in a more or less proportionate way with the intensity of land use, and possible pedestrian densities were estimated on that basis.

It must be noted that other factors important in shifting traffic from elsewhere downtown to Market Street cannot be quantified but must be considered as positive influences on pedestrian activity:

1. Growth of rapid transit into Marin and San Mateo Counties,

creating a truly regional traffic bearing down on Market Street.

2. Construction of major public facilities just off Market Street, such as the proposed sports arena and convention center. The possibility of a transportation center facilitating bus-air-transit transfers. More peripheral parking structures and a complete freeway ring.

3. Location of major public institutions downtown. A regional library is a difinite state proposal, and a new downtown campus for the University of California is a possibility.

4. Increases in tourist and convention business on a massive scale, as indicated in the Convention and Tourist Bureau figures.

5. Construction of more pedestrian magnets along Market Street such as the Powell Street cable car turnaround and Zellerbach Plaza. Powell Plaza is one already proposed; the Ferry Park is another.

A survey of projections and analyses by activity district underlies the land use growth rates used in the graphic presentations. Some of the findings are summarized by district:

FINANCIAL. Various indicators compiled by the C-3 study show that office worker employment in San Francisco will increase at an annual rate of 2.6% to 1975, and that office space in the district should grow at a rate of 2.5% to 3.5% annually, depending on which consultant's figures are used. Planned office growth alone, however, if it is completed within ten years, would average 5.4% annually.

RETAIL. While BARTD analysts estimate a decline in selling space, other analysts foresee a moderate increase in space and a more intensive use of existing space. This would mean a greater density of shoppers. The Community Renewal Program reports indicate about .5% annual increase in space. Development Research Associates believe that a faster growth would occur after 1975 -- about .7%. Chamber of Commerce figures for employment rose 2.8% between 1964 and 1965, a sign that shopper intensity may already be rising. The retail quarter, as delineated in the C-3 study, includes much of the Yerba Buena Redevelopment area; now that the project has been approved, a 100% growth can be anticipated there.

HOTEL-ENTERTAINMENT. BARTD economists anticipate a .4% yearly growth; CRP study .2%. Development Research Associates estimated a small increase. If San Francisco Convention and Visitors Bureau statistics are valid indicators of hotel, entertainment, and to some extent retail shopping demand growth, there could be considerably greater increases in hotel and entertainment facilities. Figures show a remarkable growth in the past fifteen years, particularly in convention attendance, with annual rates of growth 12% to 24%.

CIVIC CENTER. BARTD space growth projections average 4% yearly. The CRP study supports this estimate. Fox Plaza indicates the trend predicted toward greater office and apartment use.

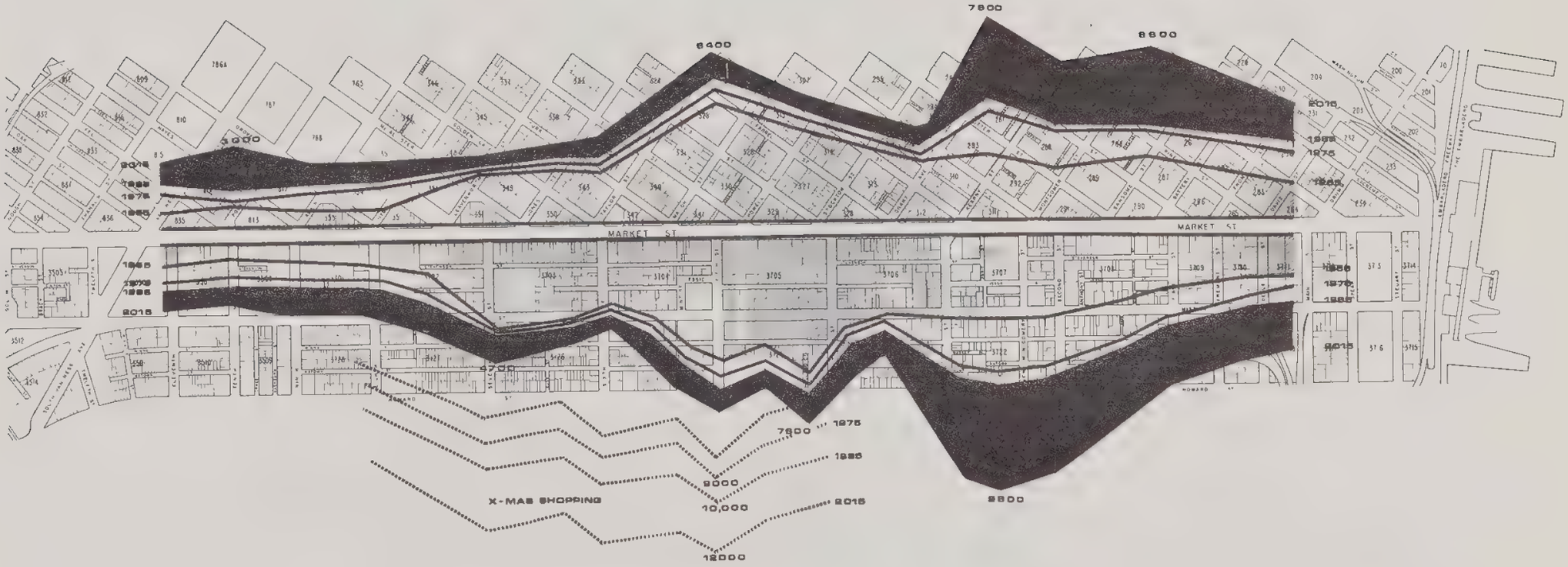
While almost all of the planning estimates have been done with rapid transit in mind, it is not certain how much weight was put on the attractive pull of the stations on Market Street. Nor did the

> predictions go beyond ten or fifteen years of growth in the downtown activity areas. The street must be designed for a long-term growth; therefore, though merely an indication of possibility -- with inaccuracy of underestimation more likely than the opposite -- the growth factors tabulated on the accompanying charts were extended to a fifty-year limit.

A steady increase of pedestrians on the sidewalks is shown by the projections above. In an attempt to measure and design for sidewalk capacity both the consultants and the task forcestaff have suggested density standards. The consultants feel that a desirable density should be used to measure sidewalk capacity. Their suggested desirable density is approximated at noon on the present sidewalk between First and Fifth Streets; a busy, apparently fully occupied sidewalk, but allowing relative freedom of movement. The task force staff has suggested a maximum density, and used it to determine sidewalk needs. Their maximum density is 2-1/2 times the consultants desirable density and results in a fully occupied sidewalk with little freedom of movement.

It can be seen easily from the charts that any additional sidewalk capacity will probably soon be absorbed, and the wider sidewalks may be crowded beyond the maximum density suggested by the task force staff in from 25 to 50 years.

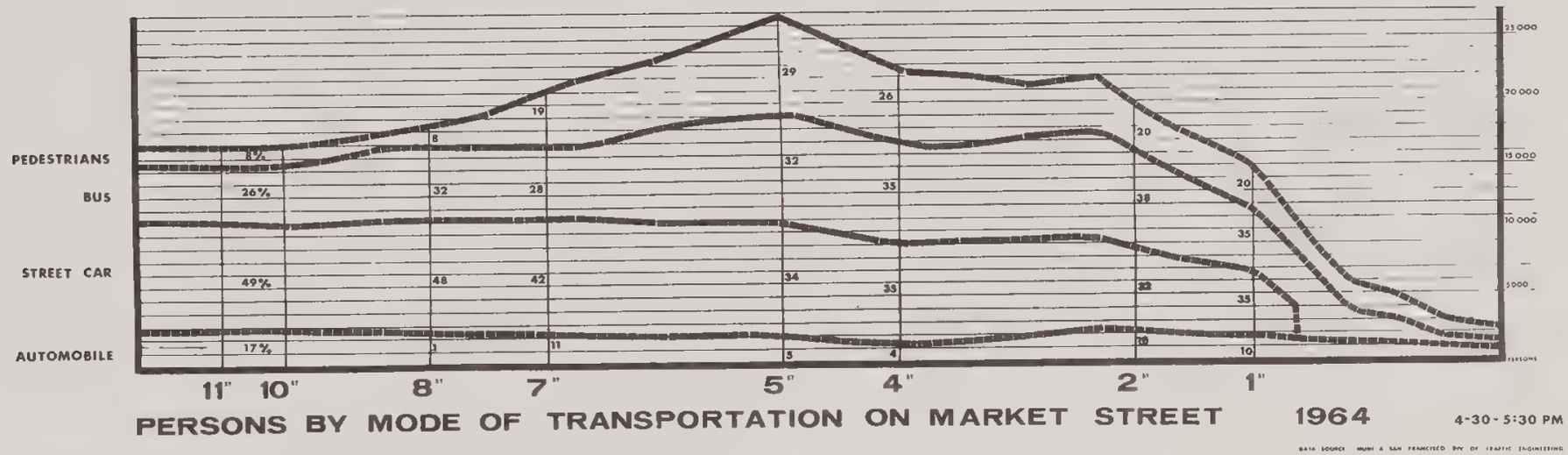
FLOOR AREA GROWTH



PEDESTRIAN GROWTH

SCALE 1 INCH EQUALS 1,000 PEDESTRIANS

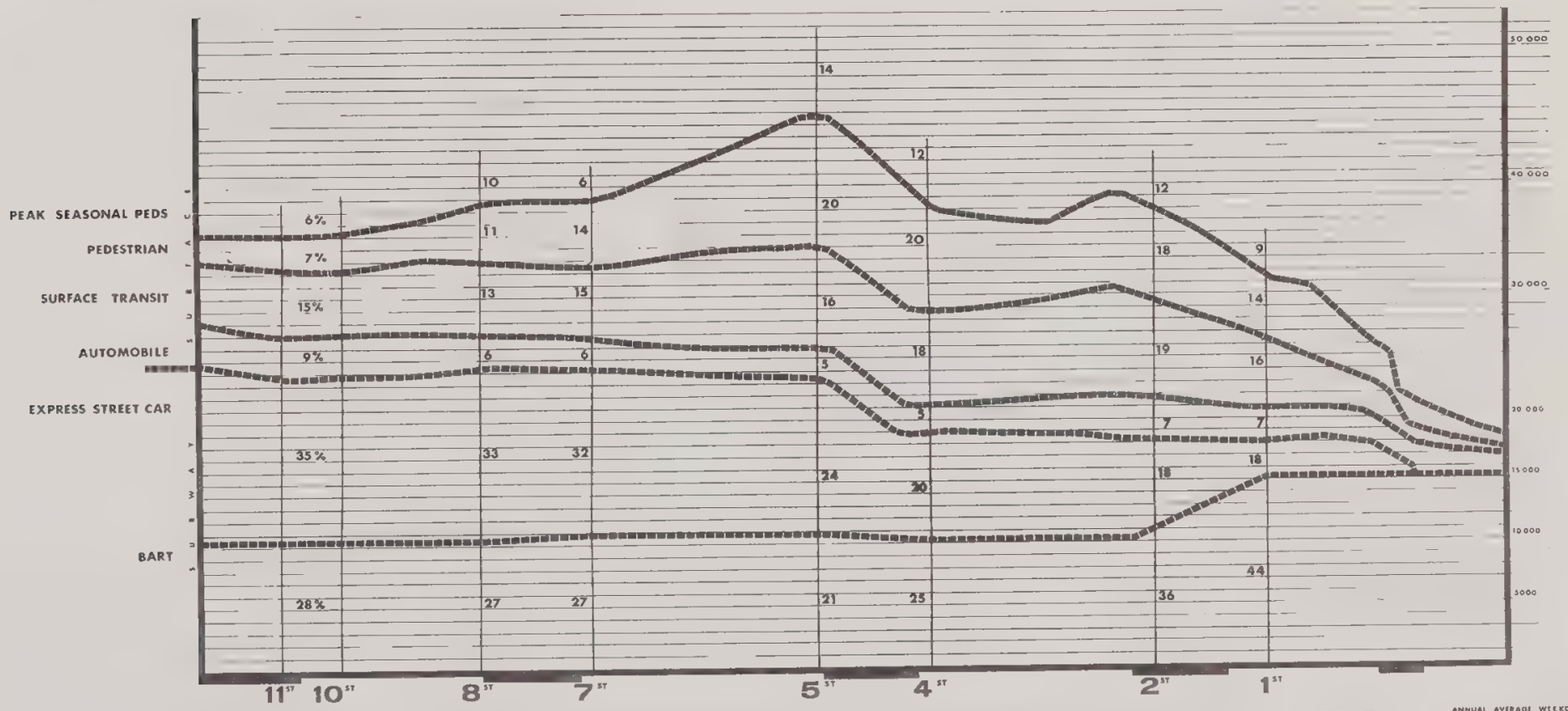
12 NOON 1 PM BASED ON FLOOR SPACE GROWTH



PERSONS BY MODE OF TRANSPORTATION ON MARKET STREET 1964

4-30 - 5:30 PM

DATA SOURCE MUNI & SAN FRANCISCO DIV OF TRAFFIC ENGINEERING



PERSONS BY MODE OF TRANSPORTATION ON MARKET STREET 1975

ANNUAL AVERAGE WEEKDAY
4:30 - 5:30 PM

DATA SOURCE MUNI & SAN FRANCISCO DIV OF TRAFFIC ENGINEERING & BART

G. DESCRIPTION OF ALTERNATIVE CIRCULATION PLANS

Five different circulation plans for Market Street were studied by the consultants. These five plans are described here in terms of their critical dimensions for traffic and pedestrian ways.

All the plans have the same arrangement of rapid transit entrances. The entrances are typically 14 feet wide and 35 feet long enclosed on three sides by walls 3-1/2 feet high from the sidewalk. The entrances contain either a stair and an escalator, or two stairs or two escalators. The outside walls are 28-1/2 feet from the building line . The entrances are arranged longitudinally along the sidewalk to give maximum station capacity and the most direct route in the mezzanines. Other arrangements which have been suggested give less satisfactory service, longer tunnels, greater cost, less capacity, and have other incidental disadvantages. Where possible, entrances are located in plazas, but most of them must be placed in the Market Street sidewalk.

The five circulation plans considered by the consultants are described as follows:

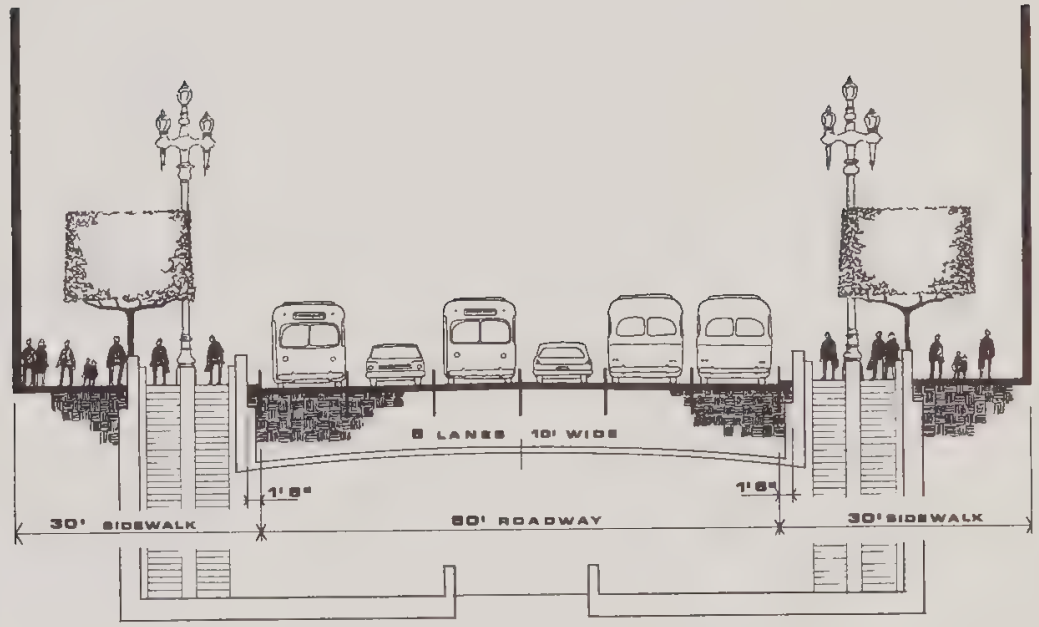
Six Lanes

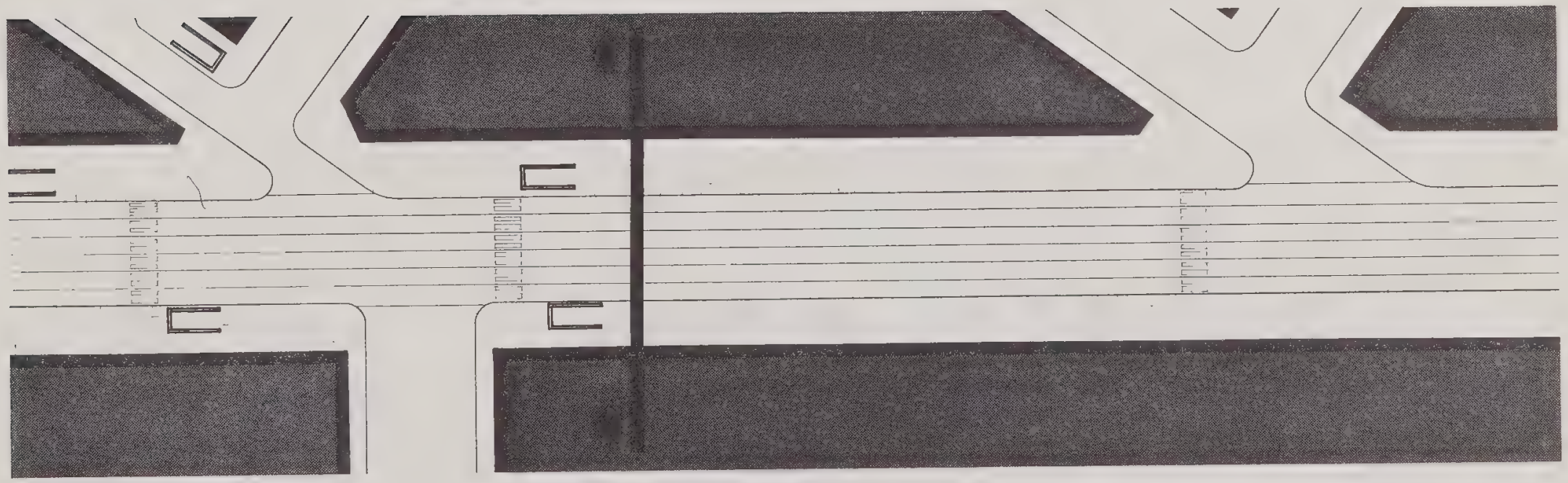
6 traffic lanes @ 10 feet	=	60 feet
2 sidewalks @ 30 feet	=	60 feet

The street width is 30 feet for traffic approaching an intersection from either direction.

The clearance for pedestrians around BARTD entrances is 1-1/2 feet to the curb and 14-1/2 feet to the building line.

Additional bays or curb lanes placed outside the traffic lanes, would reduce the sidewalk width to 21 feet, which is less than the existing sidewalk width. The Consultants do not consider this acceptable. Therefore, in the six-lane plan considered in this report, any parking or stopping of buses or service and delivery vehicles would take place in the traffic lanes next to the curb.





6 LANES

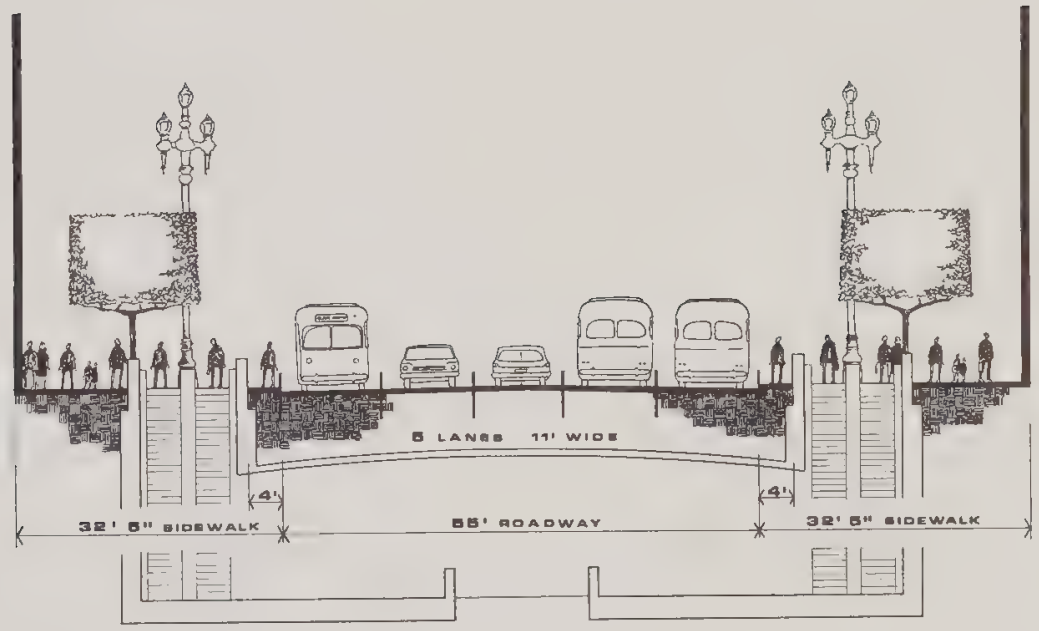
Five Lanes

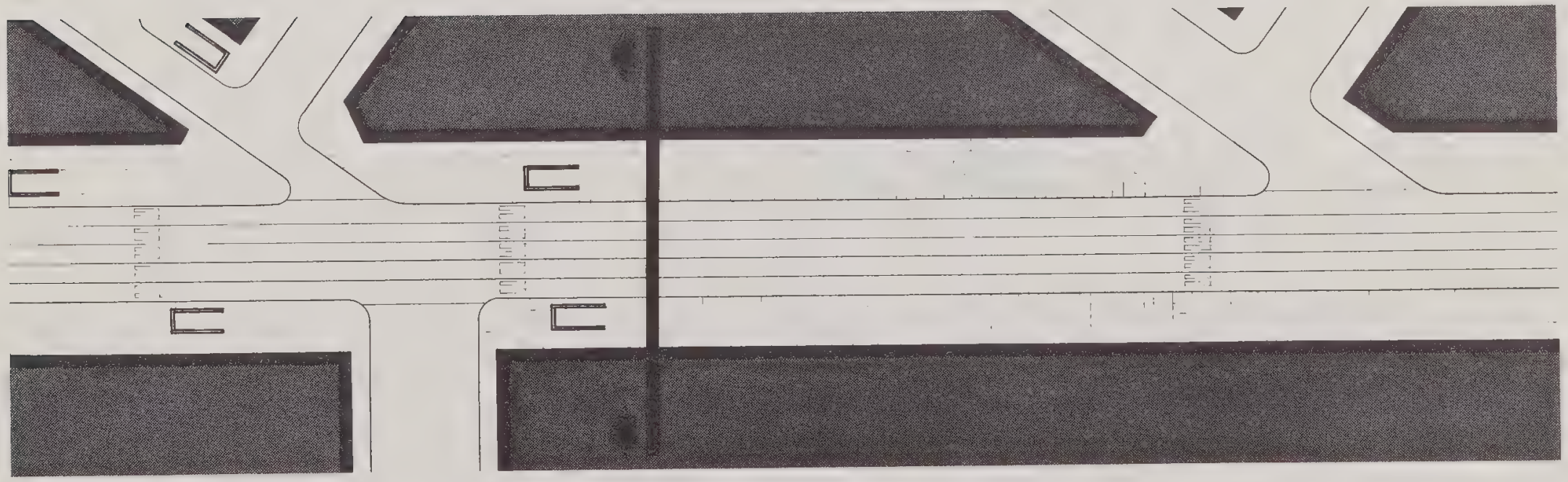
5 traffic lanes @ 11 feet	=	55 feet
2 sidewalks @ 32-1/2 feet	=	65 feet

The street width for traffic approaching an intersection is 22 feet for traffic eastbound and 33 feet for traffic westbound.

The clearance for pedestrians around BARTD entrances is 4 feet to the curb and 14-1/2 feet to the building line.

Additional bays or curb lanes would reduce the sidewalk width to 23-1/2 feet. Although the sidewalk would be 1-1/2 feet wider than the existing sidewalk, the Consultants do not consider this acceptable. Therefore, in the five-lane plan considered in this report, any parking or stopping of buses or service and delivery vehicles would take place in the traffic lanes next to the curb.





5 LANES

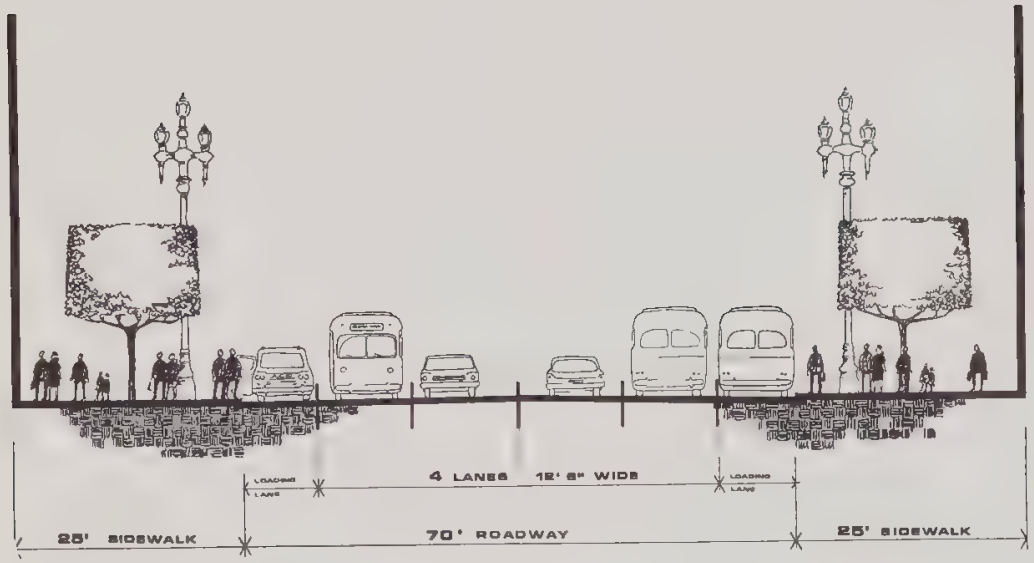
Four Lanes - Scheme A

4 traffic lanes @ 12-1/2 feet	=	50 feet
2 sidewalks @ 35 feet	=	70 feet

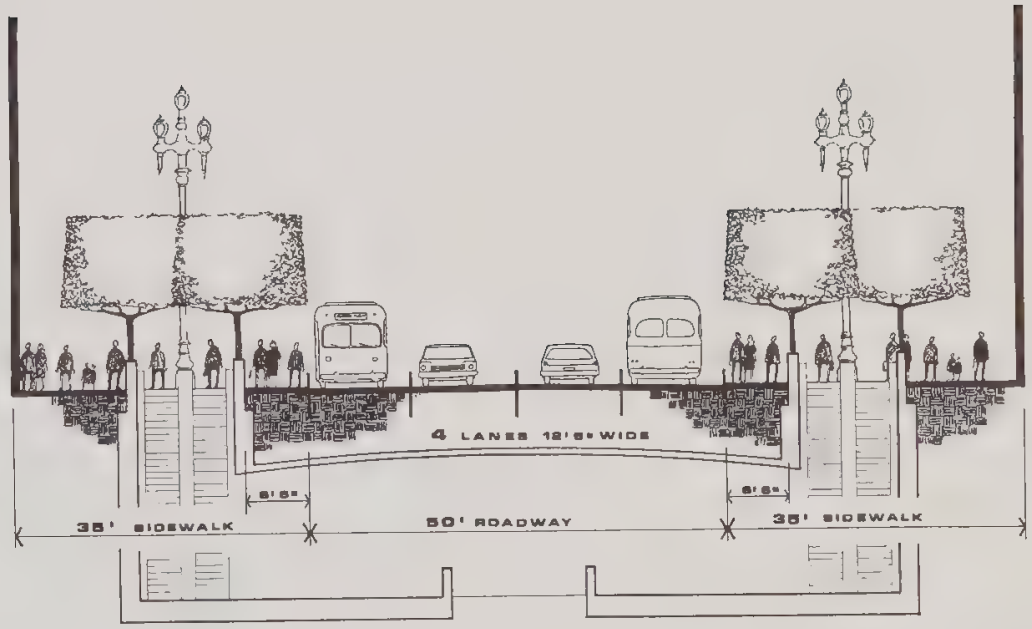
The basic street width is 25 feet for traffic approaching an intersection from either direction. Where right turn lanes are provided, the approach width is 34 feet.

The clearance for pedestrians around BARTD entrances is 6-1/2 feet to the curb and 14-1/2 feet to the building line.

Additional lanes for bus loading zones and for some right turns, and bays for service and delivery vehicles, are 9 feet wide, which leaves a sidewalk width of 26 feet where bays and additional lanes are provided. No parking or stopping of vehicles is permitted in any of the traffic lanes.



SECTION A



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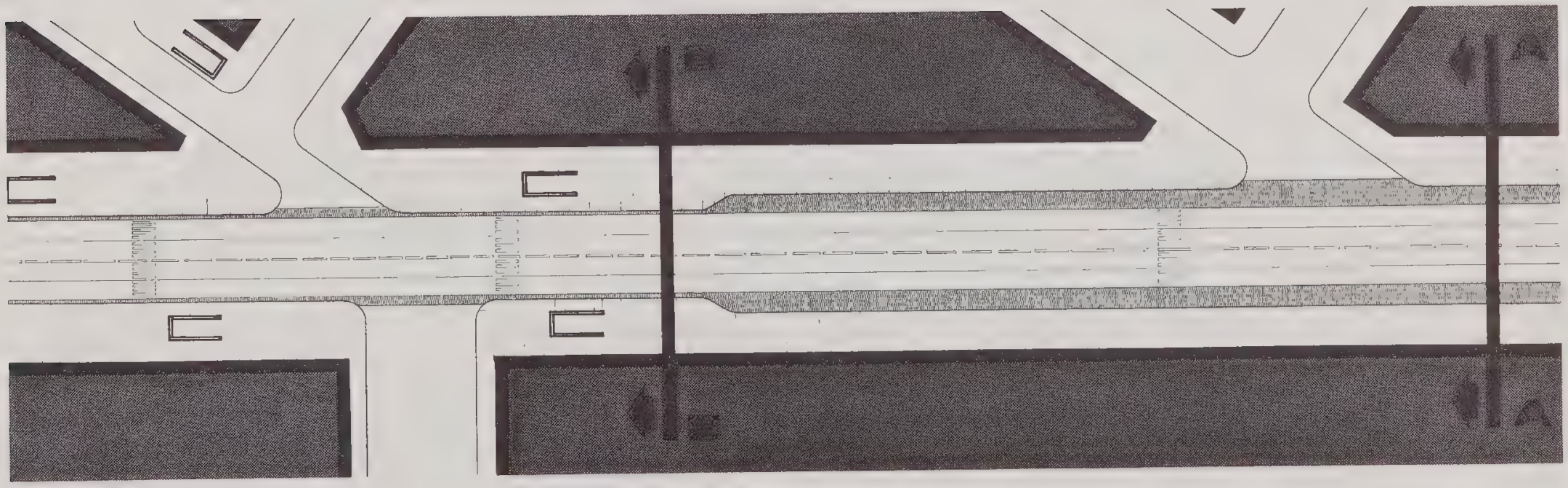
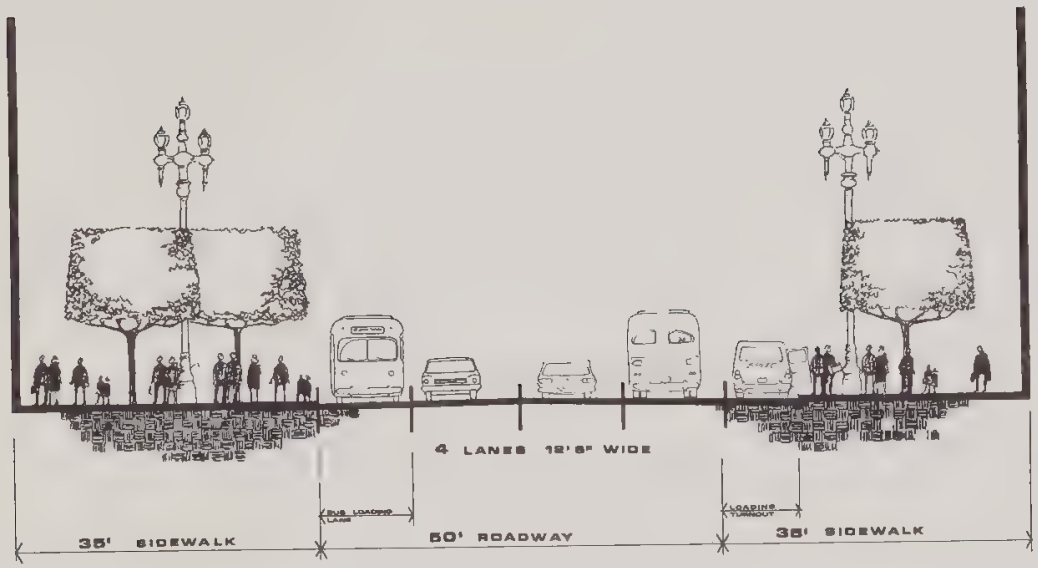


4 LANES SCHEME A



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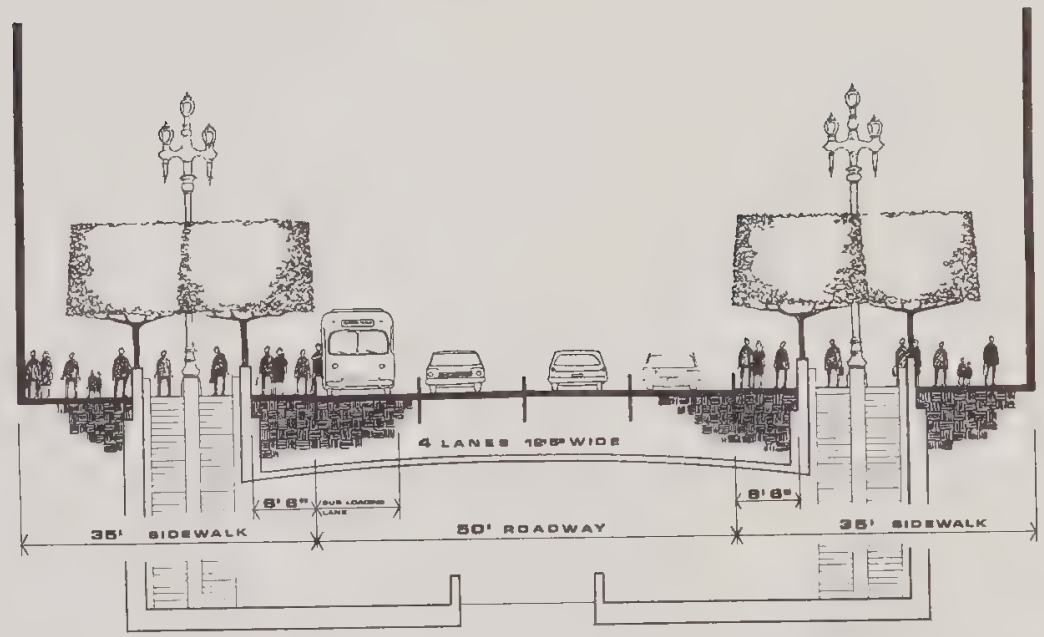

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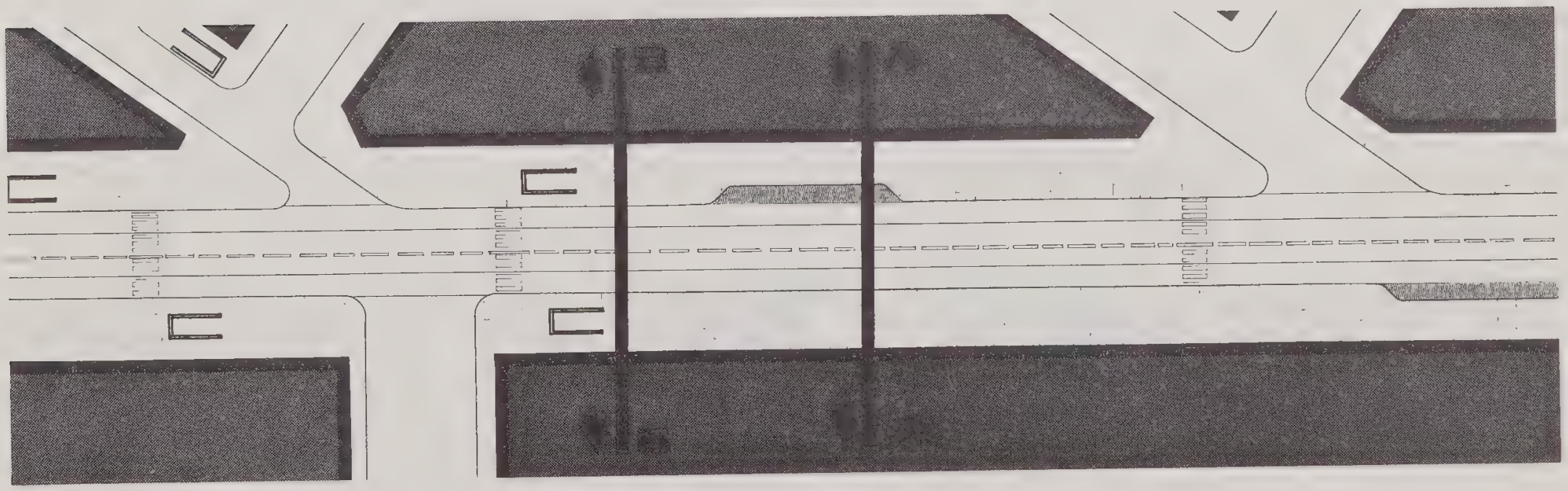


4 LANES SCHEME B

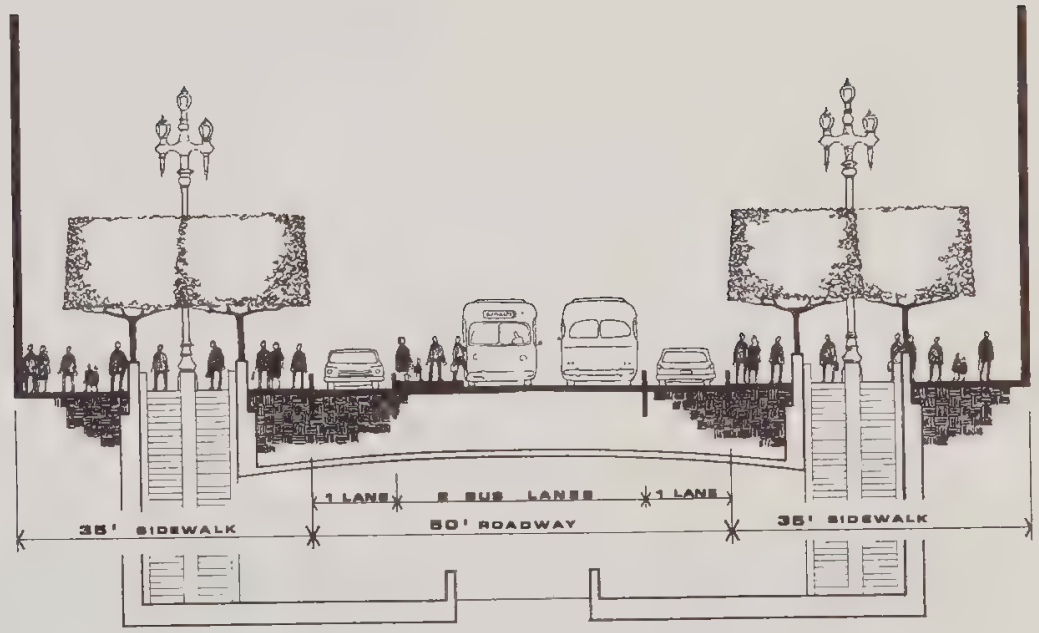
Four Lanes - Scheme C

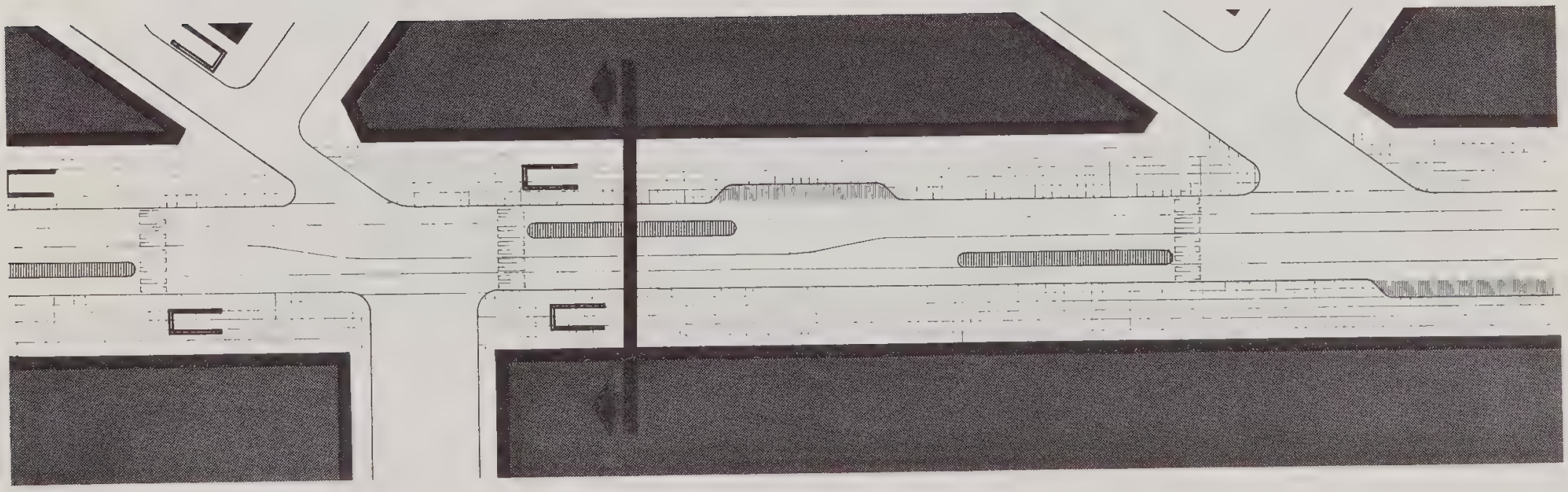
2 traffic lanes @ 10 feet	=	20 feet
2 bus lanes @ 11 feet	=	22 feet
1 pedestrian island	=	8 feet
2 sidewalks @ 35 feet	=	70 feet

The total street width for traffic approaching an intersection from either direction is 21 feet. However, this width is divided by an island into two separate lanes -- an 11-foot lane for the exclusive use of buses and a 10-foot lane for some buses and all other vehicles.

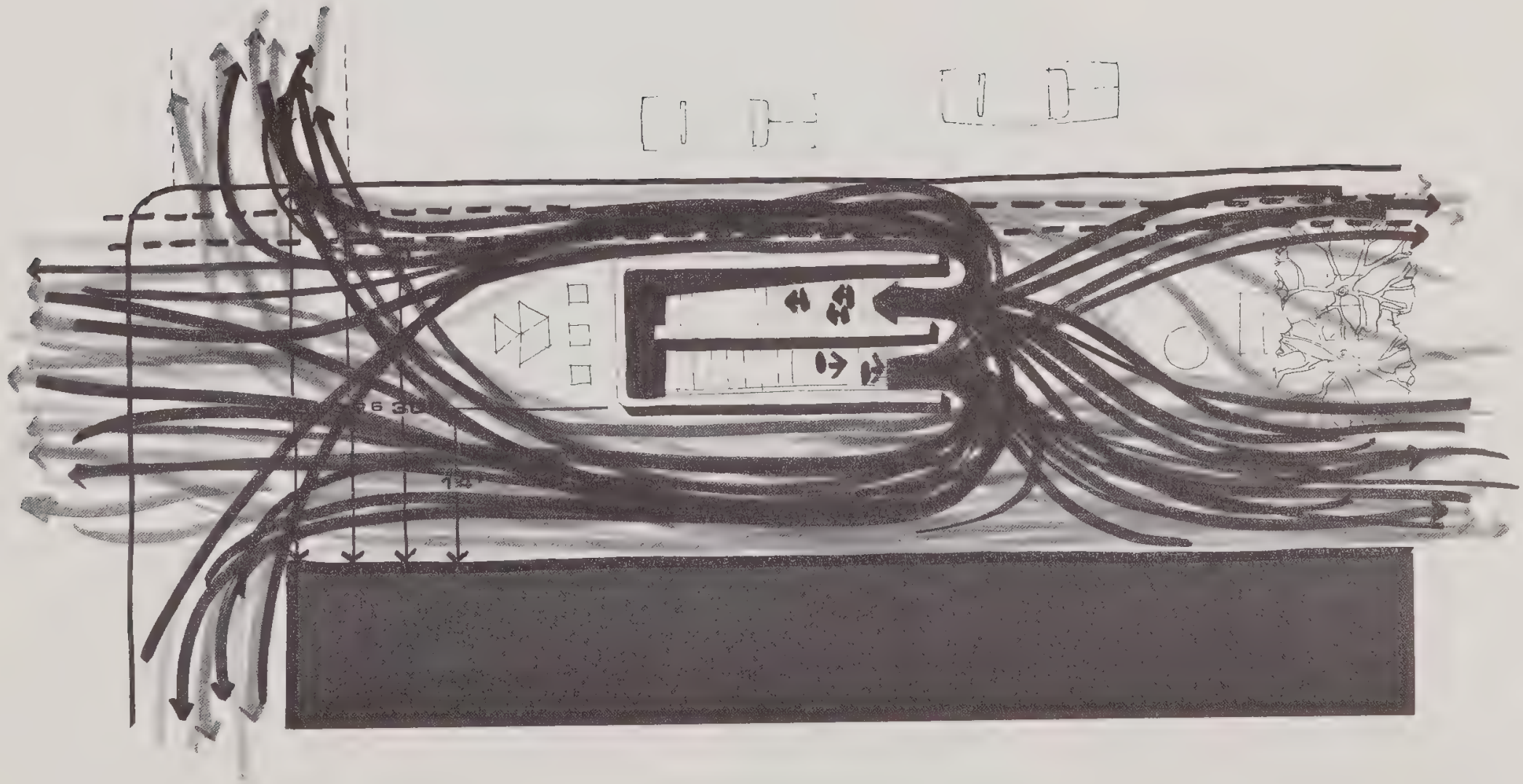
The clearance for pedestrians around BARTD entrances is 6-1/2 feet to the curb and 14-1/2 feet to the building line. Special purpose bays 9 feet wide leave a 26 foot wide sidewalk adjoining.

Bays are provided for service and delivery vehicles. These bays are 9 feet wide, leaving a sidewalk width of 26 feet where the bays are provided. Buses stop in the center traffic lanes on the approach sides of the intersections to load and unload passengers at the pedestrian islands.





4 LANES SCHEME C



TYPICAL ENTRANCE CONDITION

H. COMPARISON OF ALTERNATIVE CIRCULATION PLANS

The five circulation plans were compared according to the criteria listed under Goals and Objectives.

1. Pedestrian Circulation

The six, five and four lane plans have sidewalk widths of 30, 32-1/2, and 35 feet, respectively, in the station areas at the BARTD entrances. The sidewalk width between the curb and the BARTD entrance is a critical dimension. A 30-foot sidewalk leaves 1-1/2 feet, which is not considered adequate for safety. A 32-1/2-foot sidewalk leaves 4 feet, which is better for safety but still not wide enough for pedestrians to use with confidence and comfort.

Studies of people moving on sidewalks show that they will flow around obstructions for a short distance without appreciable slowing if the sidewalk is sufficiently wide on both sides of the obstruction. For this reason, wider sidewalks in the station areas will help circulation during the periods of peak transit use. The four-lane plans provide 6-1/2 feet for the critical dimension between curb and BARTD entrance, which would make it possible for pedestrians to walk on either side of the BARTD entrances in relative comfort and safety.

During other hours, particularly at lunch times, and in the afternoon, a continuous wide sidewalk is desirable.

Pedestrian trips along the street at these times are generally longer in contrast to the quick dispersal of people to side streets or to BARTD underground levels that will occur in the peak commuting hours. Therefore, sidewalks 26 feet to 35 feet wide outside station area are of importance to pedestrians.

Many municipal services, conveniences, and private concessions will be placed on the sidewalks. Added space on the sidewalks gives a potential for generous design which, when used properly, can greatly enhance the appearance of the street, its attraction to pedestrians, and the value of the properties along it.

Even now, the present sidewalk width on Market Street is not too great; with increased use after BARTD's subway construction and more intensive development, the Consultants feel that the recommended increase in width will be essential.

2. Transit Circulation

The street cars will be moved underground leaving buses as the only transit vehicles on the street. Operation of buses in the six and five lane plans would be essentially the same as present bus operation on Market Street. In the peak hours, buses would operate continuously in the curb lane when tow away regulations would be in effect. In other periods tne buses would move around vehicles parked at the curb; as they do now.

The Four lane Scheme A provides bus stops in an extra curb lane outside the station areas. Buses would operate as they do now in off peak periods, but there would be some improvement where additonal lanes are provided for right turns. The tow away regulation would apply in the extra curb lane during peak periods.

Four lane Scheme B provides for bus stops at the curb in the right hand traffic lanes. This is similar to present bus operation during peak periods.

Four lane Scheme C is intended to provide better bus service based on the assumption that buses could travel faster in exclusive bus lanes. In this scheme the buses would use the center lanes and load at pedestrian islands similar to the way that streetcars now load on Market Street. Because of the delays involved in signal operation at the intersections, both for buses and pedestrians, and because of the number of buses that would use the center lanes compared to the number of streetcars now using them, there is some question whether Scheme C would, in fact, give better bus service than Scheme A or B. In addition, there is some disadvantage in requiring passengers to cross through traffic to use the loading islands. Further study is needed before an intelligent comparision of bus operation can be made.

3. Service and Delivery.

Service and delivery requirements on Market Street can be expected to diminish as new, larger buildings are constructed

with off-street loading and service and access from other streets. Market Street can be further relieved of service vehicles by improving conditions for trucks on the service streets, such as Stevenson Street. Coordination of deliveries from central points and effective scheduling of deliveries may be instituted as part of an overall downtown plan to improve service. However, service and delivery will still have to be handled on Market Street at some buildings until they are replaced and provision will always be needed for taxis, emergency parking, utility repairs and other uses.

The six lane plan provides most flexibility for stopping, loading and emergency parking, but only at the expense of traffic capacity and transit operation. The five lane plan has the same characteristics as the six lane plan in the westbound direction, but in the other direction is more restricted than the existing street. Four lane Scheme A provides for continuous taxi, loading, service and emergency parking outside the station areas. New building may occur sooner at the station area than other areas and all sidewalk elevators and basements will be removed at the stations by BARTD construction. These two factors may eliminate, or at the least reduce the need for loading and deliveries to buildings in the station areas.

Four lane Schemes B and C provide bays at those points where service and delivery parking and taxi service are most needed now. However, there is no extra provision for parking of emergency and utility repair vehicles out of the traffic lanes.

4. Emergency Vehicles

Emergency vehicles, particularly fire fighting equipment, are best served by a wide two-way street without a median divider. The vehicles can clear a blocked intersection by driving on the wrong side of the street when approaching the intersection and moving back to the right side of the street while crossing the intersection. The six lane plan would best serve this maneuver, except where vehicles are parked in the curb lanes. Such parking would reduce the clear width to about 22 feet. The five lane plan would be less desirable for the operation of emergency vehicles.

Four lane Schemes A and B have the advantage of keeping the curb lanes clear on the far sides of the intersections so that a full 25-foot width would be available for use by emergency vehicles. However, Scheme B would leave about 13 feet clear if buses were stopped near an intersection. The buses could move ahead to clear the way for emergency vehicles but the operation would probably cause some delay.

Four lane Scheme C is probably less desirable for the operation of emergency vehicles than any of the other plans. The center lanes are offset at the intersections which reduces the clear width on the far side to 21 feet and forces the emergency vehicle to make a wider swing through the intersection.

5. Traffic Circulation

The number of vehicles moving on downtown streets will probably continue to increase for many years. Analyses have indicated that the capacity of the downtown street

system may soon be reached. The downtown circulation plan could be revised to make more efficient use of existing streets and to relieve Market Street as a traffic carrier. Market Street is not an important carrier of through traffic but serves as a link between cross streets, especially at the angular intersections of the two grid patterns north and south of Market Street. Introduction of more one-way cross streets may increase the importance of this function, but is not expected to require a large increase in the traffic capacity of Market Street. It is important therefore to consider the traffic capacity of the five plans compared to that of the existing street. Capacities are compared in the following table.

Plan	Approach Width	Percent of Existing Capacity
Existing street	21-1/2 feet	100%
Six lanes	30 feet	140%
Five lanes:		
Westbound	22 feet	100%
Eastbound	33 feet	150%
Four lanes Scheme A:		
At BARTD Stations	25 feet	115%
Between BARTD stations	34 feet	160%
Four lane Scheme B	25 feet	115%
Four lane Scheme C	21 feet	50%

The capacity comparison indicates that all of the plans under consideration except four lanes Scheme C would result in more traffic capacity than Market Street has now. The six lane plan would provide the largest overall increase in capacity, although the use of the curb lanes for stopping and delivery could reduce the capacity depending upon the extent and effectiveness of parking prohibitions near intersections. The five lane plan would have about the same capacity as the six lane plan in the westbound direction. Since the available traffic counts indicate that peak traffic demand may be about the same in each direction at various times and locations, the five lane plan does not appear to have any significant advantages.

Four lane Schemes A and B have more capacity than the existing street but less than the six lane plan, except that four lane Scheme A provides more capacity than the six lane plan where right turn lanes are added to the basic four lane street width.

It is difficult to estimate the capacity of Scheme C on the same basis as the other plans because of the exclusive use of the center lanes by transit, the effects of near-side bus loading, the effects of right turns in blocking the single lane available for traffic other than transit, and the division of the total approach width by a pedestrian island. It is estimated, however, that these factors would reduce the capacity to about one-half that of the existing street. Scheme C would discourage circulating traffic from using Market Street and would increase the traffic load on adjacent streets which are already overburdened.

Summary of the Comparisons

The six lane plan has adequate provision for service and delivery, is adequate for use by emergency vehicles, provides a substantial increase in traffic capacity and permits buses to operate as they do now. However, it is the least desirable plan for pedestrians and from the stand point of improving the appearance of Market Street. The sidewalk at the BARTD entrances is inadequate and undesirable from the stand point of safety.

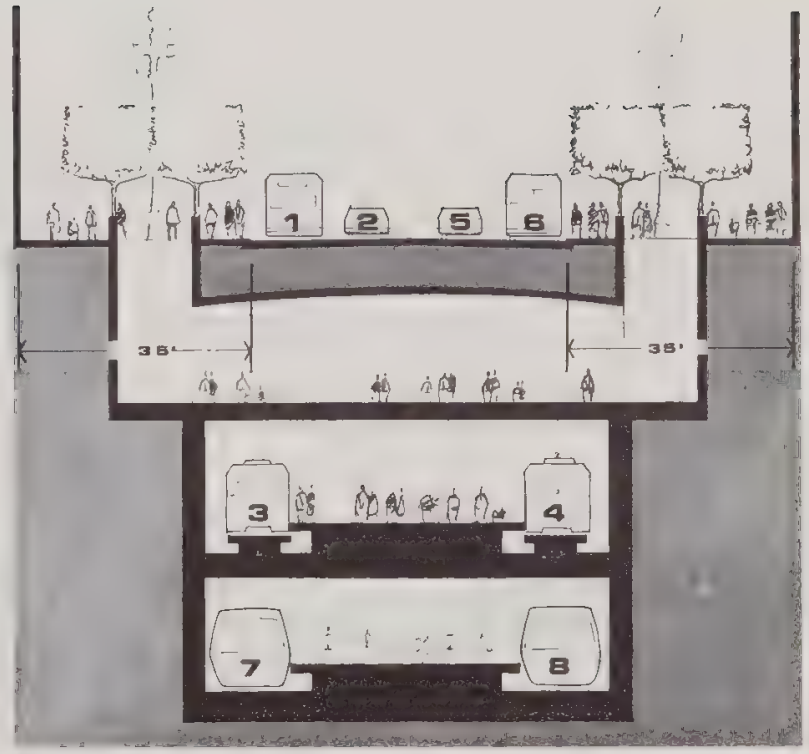
The five lane plan has almost nothing to recommend it either from a traffic, transit, service and delivery or pedestrian point of view.

The four lane schemes A and B have adequate provision for service and delivery, are adequate for use by emergency vehicles, increase traffic capacity and provide some improvement in bus operation. They are far superior to the six lane plan in providing improvements for pedestrians and improvements in the appearance of the street.

The four lane Scheme C provides well for pedestrians. It offers some advantages for bus operations which are still questionable,however. It is adequate for service and delivery, but is undesirable for use by emergency vehicles. It is not adequate from the standpoint of traffic capacity.

PRESENT

6 LANES
2 BUSS
2 AUTO
2 STREETCAR

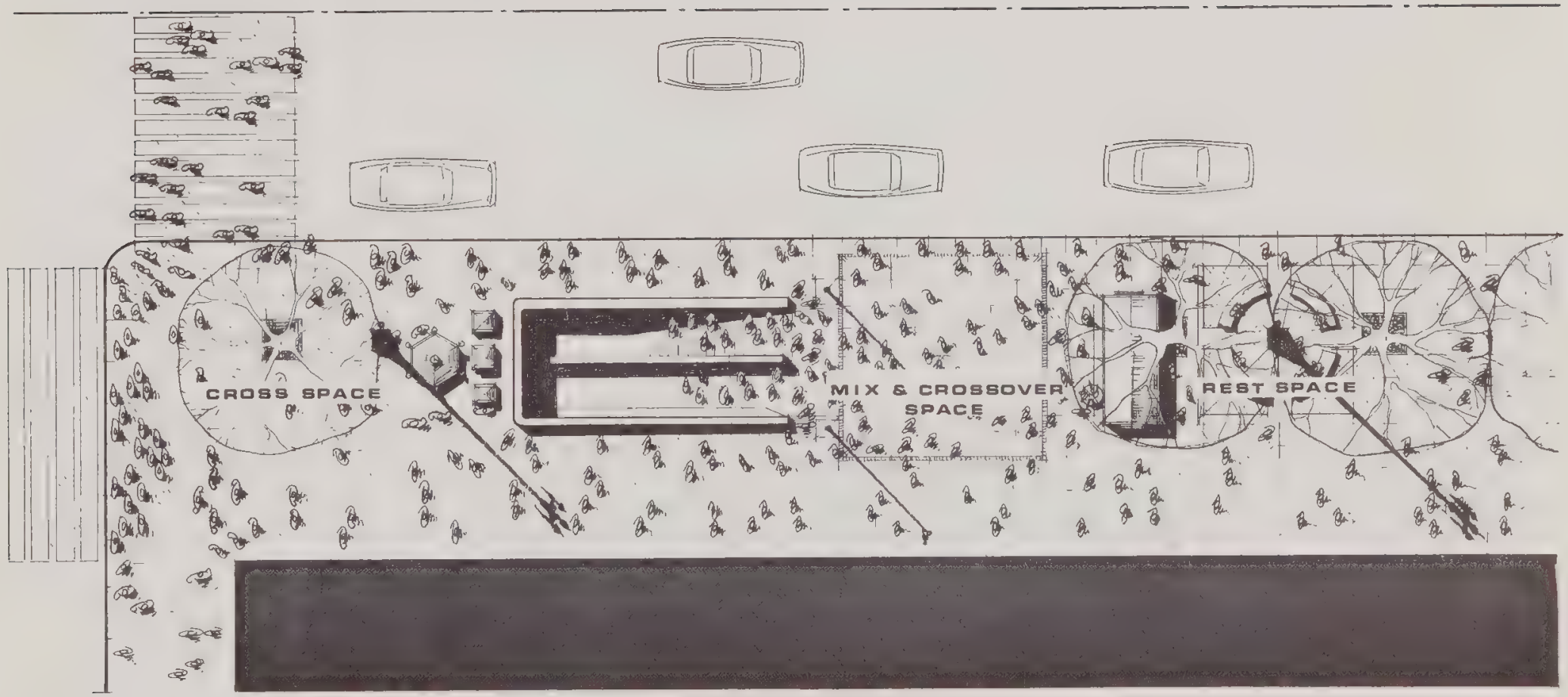


FUTURE

8 LANES

2 BUSS
2 AUTO
2 STREETCAR
2 R. TRANSIT

RECOMMENDATIONS



RECOMMENDED 35' SIDEWALK

I. CITY POLICY AND ACTION

When the Consultants have completed the design Phase of stage II of their work - which will proceed when the policy decision on street use, requested in this Report, has been made - their final report will include a public works "package", detailing the work required by the City to effectuate the design.

In the meantime, however, certain other policy decisions, and certain actions, will be required as a result of the immediate policy decision on street and sidewalk width and use.

For that reason, to indicate policy and action implications of the present decision, the following brief analysis is presented.

1. Service and delivery. Under any of the plans analysed in this Report, immediate steps will be necessary to limit, and ultimately to prohibit, vehicular service and delivery to properties on Market Street. Possible actions would be:

   a. Encouragement of off-street loading and servicing facilities.

   b. Encouragement of off Market Street loading and servicing.

   c. Encouragement of consolidation, simplification, rationalization of delivery and servicing by the separate businesses or agencies and associations involved.

d. Restrictions by time, type of vehicle and type of delivery, for such activities still permitted on Market Street.

2. Traffic Regulations. The simplified design recommended for Market Street should make it possible to simplify and more easily enforce what regulations of traffic are necessary or desirable, including:

   a. Parking regulations.

   b. Turns onto and off the Street.

   c. Stopping at curb lanes on the Street.

   d. Loading, service and delivery.

3. Improvement of Parking Capacity in the Market Street Area. Market Street will be carrying at least the same number of private and commercial vehicles. To improve use of the Street and facilitate movement of people and necessary traffic, certain regulations and policies, consistent with an overall parking plan for downtown, are indicated:

   a. No curb parking should be allowed.

   b. No parking lots or garages should have direct access to Market Street.

c. Further development of parking facilities, and development of an overall plan, should be coordinated with policy on use of the Street.

4. Public Works. In anticipation of a complete public works program, the City should be making preparations for the following kinds of work directly affected by a decision on circulation:

a. Sidewalk paving, of a quality and design in keeping with the scale and importance of the widened sidewalk.

b. Planting. Permanent planting, to be designed shortly, should be anticipated. This will include gratings, tree guards, curbs and special paving.

c. Street lighting: relocated, added to, improved.

d. Street furniture: benches , kiosks, stands, etc.

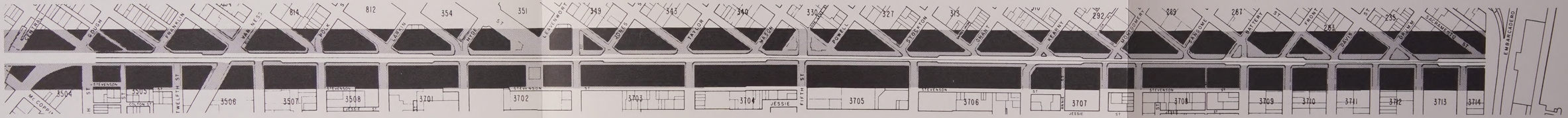
e. Problems affecting use of under sidewalk vaults: possible interference with planting; possibly objectionable sidewalk elevators; possible effect on paving and maintenance of the sidewalk.

f. Problems of possible relocation of certain necessary elements: manholes, hydrants, Police and Fire alarms.

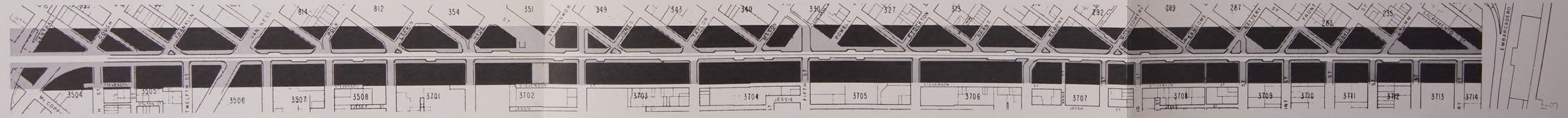
g. Redesign of certain elements, such as signing.

Other major actions that will be necessitated by reconstruction, redesign and reuse of the Street, the Consultants realize, are being considered now by the City: adjustments in Municipal Railway services and routings; changes in utilities under the Street surface; effect of a policy decision on use of Market Street on other studies such as downtown zoning, land use, downtown traffic and parking, and specific public projects such as Ferry Park, Golden Gateway, and Yerba Buena.

Market Street's development into the Great Street that it should and will become must, in short, be effectuated from now on by a continuing series of policy decisions, public actions, public works, and coordination of many public and private developments. The Urban Design Consultants look forward to making further, more detailed design recommendations as the work proceeds.



4 LANES SCHEME A



4 LANES SCHEME B